Gadhi, Nazih Abderrazzak; **El Idrissi, Mohammed**; **Hamdaoui, Khadija**

Necessary optimality conditions for a semivectorial bilevel optimization problem using the kth-objective weighted-constraint approach. (English) Zbl 07239390

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Summary: In this paper, we have pointed out that the proof of Theorem 11 in the recent paper [*L. Lafhim*, Positivity 24, No. 2, 395–413 (2020; Zbl 07193703)] is erroneous. Using techniques from variational analysis, we propose other proofs to detect necessary optimality conditions in terms of Karush-Kuhn-Tucker multipliers. Our main results are given in terms of the limiting subdifferentials and the limiting normal cones. Completely detailed first order necessary optimality conditions are then given in the smooth setting while using the generalized differentiation calculus of Mordukhovich.

MSC:

90C29 Multi-objective and goal programming
90C26 Nonconvex programming, global optimization
90C70 Fuzzy and other nonstochastic uncertainty mathematical programming
49K99 Optimality conditions

Keywords:

constraint qualification; limiting subdifferential; limiting normal cone; optimality condition; semivectorial bilevel program; weakly efficient solution

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